

CLAIMS:

1. A negative electrode material for non-aqueous electrolyte secondary batteries, wherein a negative electrode active material containing a lithium ion-occluding and releasing material which has been treated with an organosilicon base surface treating agent is surface coated with a conductive coating.
2. The negative electrode material of claim 1 wherein said lithium ion-occluding and releasing material is selected from the group consisting of silicon, a composite dispersion of silicon and silicon dioxide, a silicon oxide represented by the general formula SiO_x wherein $1.0 \leq x < 1.6$, and a mixture thereof.
3. The negative electrode material of claim 1 wherein said organosilicon base surface treating agent is at least one member selected from the group consisting of a silane coupling agent or a (partial) hydrolytic condensate thereof, a silylating agent, and a silicone resin.
4. The negative electrode material of claim 3 wherein said organosilicon base surface treating agent is at least one member selected from the group consisting of a silane coupling agent of the general formula (1) or a (partial) hydrolytic condensate thereof, a silylating agent of the general formula (2), and a silicone resin of the general formula (3),
- $$\text{R}_{(4-n)}\text{Si}(\text{Y})_n \quad (1)$$
- $$(\text{R}_m\text{Si})_L(\text{Y})_p \quad (2)$$
- wherein R is a monovalent organic group, Y is a hydrolyzable group or hydroxyl group, n is an integer of 1 to 4, p is an integer of 1 to 3, L is an integer of 2 to 4, and m is an integer of 1 to 3,



wherein R^1 is hydrogen or a substituted or unsubstituted monovalent hydrocarbon group of 1 to 10 carbon atoms, R^2 is hydrogen or a substituted or unsubstituted monovalent hydrocarbon group of 1 to 6 carbon atoms, q and r each are 0 or a positive number satisfying $0 \leq q \leq 2.5$, $0.01 \leq r \leq 3$, and $0.5 \leq q+r \leq 3$.

5. The negative electrode material of claim 1 wherein said conductive coating is a carbon coating.

6. The negative electrode material of claim 5 wherein the amount of carbon coated is 5 to 70% by weight of said negative electrode active material.

7. A method of preparing a negative electrode material for non-aqueous electrolyte secondary batteries, comprising the step of heat treating a negative electrode active material containing a lithium ion-occluding and releasing material which has been treated with an organosilicon base surface treating agent, in an atmosphere containing an organic material gas or vapor at a temperature in the range of 500 to 1400°C.

8. The method of claim 7 wherein the organic material gas or vapor is thermally decomposed to form graphite in a non-oxidizing atmosphere at a temperature in the range of 500 to 1400°C.

9. A lithium ion secondary battery comprising the negative electrode material of claim 1 as a negative electrode active material.